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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/566,725	07/13/2006	Shinji Matsuo	1752-0179PUS1	9714

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EXAMINER	
BOHATY, ANDREW K	
ART UNIT	PAPER NUMBER
1794	

NOTIFICATION DATE	DELIVERY MODE
09/18/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No.	Applicant(s)	
	10/566,725	MATSUO ET AL.	
	Examiner	Art Unit	
	Andrew K. Bohaty	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 August 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,8 and 9* is/are pending in the application.

4a) Of the above claim(s) *3-7* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) *1, 2, 8, and 9* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 February 2009* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *2006/02/02; 2006/04/28*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group I, claims 1, 2, 8 and 9 in the reply filed on 25 August 2009 is acknowledged.

2. Claims 3-7 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected group, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 25 August 2009.

3. Applicant's election with traverse of claim 3-7 in the reply filed on 25 August 2009 is acknowledged. The traversal is on the ground(s) that there exists not undue administrative burden for the Examiner to search and consider all claims in their entirety. This is not found persuasive because the applicant did not argue the merits of the restriction requirement and further the level set for undue search burden includes the groups be in different classifications, as shown in action mailed 31 July 2009, and use of different search strings to search for two different groups.

4. The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 1, 2, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bryan et al. (US 5141671) (hereafter "Bryan") in view of Kita et al. (EP 1013740) (hereafter "Kita") and Higashi et al. (WO 2000/41443) where Higashi et al. (US 6617051) (hereafter "Higashi") is used as the English equivalent.

8. Regarding claims 1, Bryan teaches aluminum chelate complexes (column 5 formula (III), column 9 PC-7, column 11 PC-17) that can be used in an organic EL device (column 2 lines 58-63). Bryan teaches that the complexes, such as PC-7, are synthesized without the use of any materials that contain a halogen atom (column 21 lines 19-45). Since this procedure does not use any materials that have a halogen atom, the complexes the meet the limitations of formula (2) would not be present; therefore, the ppm for the compound would be zero. Bryan further teaches the purification of the aluminum chelate complexes by using sublimation (column 23 lines 40-53). The complexes taught by Bryan do not meet the limitations of the formula (1) in claim 1, but Bryan does teach in formula (II) (column 5 lines 13-30) the phenolate group can contain substituents and the substituents can come together to form an aromatic ring (forming a naphthyl group) and this group can be further substituted. Bryan

teaches the phenolate complex shifts the emission properties of the aluminum chelate complex (column 3 liens 59-64).

9. Bryan does not teach an aluminum chelate complex the meets the limitations of formula (1) in claim 1.

10. Kita teaches an aluminum chelate complex (Page 31, compound E-12) that can be used in an organic electroluminescent device (paragraphs [0014], [0017], and [0022], formula E-1). Compound E-12 reads on formula (1) in claim 1 where Ar_1 and Ar_2 are naphthyl groups (bicyclic arylene groups), the total number of aromatic rings in Ar_1 and Ar_2 is 4, R_1-R_5 are hydrogen atoms and R_6 is a methyl group (a hydrocarbon containing 1 carbon atom). Kita teaches the use of the aluminum chelate complex as a light emitting material (paragraph [0159]). Kita teaches the aluminum chelate complex can be used to provide an electroluminescent element capable of emitting high luminance light and has high storage ability (paragraph [0013]).

11. Higashi teaches that the presence of halogen impurities in organic materials used in the organic compound layers of an organic EL device will attenuate emission luminance and short emission layer in organic EL devices (column 29 lines 41-67 and column 30 lines 1-18).

12. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the synthesis method used by Bryan to make aluminum chelate complexes to make the aluminum chelate complex taught by Kita. Both Bryan and Kita teach aluminum chelate complexes and the use of the complexes as fluorescent materials in an organic electroluminescent device; therefore, it would have

been obvious to use Bryan's method to make the aluminum chelate complex of Kita. The motivation would have been to avoid the presence of halogen containing impurities because halogen containing impurities are known to attenuate emission luminance and short emission layer in organic EL devices.

13. Regarding claim 2, the compound, E-12, in Kita teaches were Ar_1 is naphthylene and Ar_2 is naphthyl and since no halide compound is present in the synthesis of the complexes according to Bryan, no compounds corresponding to formula (2) would be present; therefore, the requirement for the X group is not needed.

14. Regarding claim 9, Bryan teaches that the purity of the compounds can be improve during the production of the compounds by using sublimation (column 22 liens 40-53, Table II); therefore, incorporating a quality control practice during the production of the aluminum chelate complexes. Since Bryan synthesis does not include the use of materials that contain a halogen group the amount of the impurity would be 0 ppm.

15. Claims 1, 2, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kita et al. (EP 1013740) (hereafter "Kita") in view of Bryan et al. (US 5141671) (hereafter "Bryan") and Higashi et al. (WO 2000/41443) where Higashi et al. (US 6617051) (hereafter "Higashi") is used as the English equivalent.

16. Regarding claim 1, Kita teaches an aluminum chelate complex (Page 31, compound E-12) that can be used in an organic electroluminescent device (paragraphs [0014], [0017], and [0022], formula E-1). Compound E-12 reads on formula (1) in claim 1 where Ar_1 and Ar_2 are naphthyl groups (bicyclic arylene groups), the total number of

aromatic rings in Ar_1 and Ar_2 is 4, R_1-R_5 are hydrogen atoms and R_6 is a methyl group (a hydrocarbon containing 1 carbon atom). Kita teaches the use of the aluminum chelate complex as a light emitting material (paragraph [0159]).

17. Kita does not teach how the aluminum chelate complex is synthesis and if there is an impurity corresponding to formula (2) is present.

18. Bryan teaches aluminum chelate complexes (column 5 formula (III), column 9 PC-7, column 11 PC-17) that can be used in an organic EL device (column 2 lines 58-63). Bryan teaches that the complexes, such as PC-7, are synthesized without the use of any materials that contain a halogen atom (column 21 lines 19-45). Since this procedure does not use any materials that have a halogen atom, the complexes the meet the limitations of formula (2) would not be present, or be 0 ppm. Bryan further teaches the purification of the aluminum chelate complexes by using sublimation (column 23 lines 40-53). The complexes taught by Bryan do not meet the limitations of the formula (1) in claim 1, but Bryan does teach in formula (II) (column 5 lines 13-30) the phenolate group can contain substituents and the substituents can come together to form an aromatic ring (forming a naphthyl group) and this group can be further substituted.

19. Higashi teaches that the presence of halogen impurities in organic materials used in the organic compound layers of an organic EL device will attenuate emission luminance and short emission layer in organic EL devices (column 29 lines 41-67 and column 30 lines 1-18).

20. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the synthesis method taught by Bryan to make the aluminum chelate complex taught by Kita. One would use the method taught by Bryan because the method does not include the use of materials that contain halogen atoms and thus would avoid the presence of compounds containing halogens as impurities. One would avoid halogen containing impurities because it was shown by Higashi that the presence of halogen containing impurities attenuate emission luminance and short emission layer in organic EL devices.

21. Regarding claim 2, the compound, E-12, in Kita teaches were Ar_1 is naphthylene and Ar_2 is naphthyl and since no halide compound is present in the synthesis of the complexes according to Bryan, no compounds corresponding to formula (2) would be present; therefore, the requirement for the X group s not needed.

22. Regarding claim 9, Kita does not teach the use of quality control to determine the amount of impurities in the compound during production, shipping, or use.

23. Regarding claim 9, Bryan teaches that the purity of the compounds can be improve during the production of the compounds by using sublimation (column 22 liens 40-53, Table II). Bryan teaches the aluminum chelate complexes are suited for use in EL devices due to the complexes stability and efficiency (column 2 lines 58-63).

24. Higashi teaches the purity of the compounds can be checked during the production of the desired compound to make sure no halogen containing compounds are present or are limited (column 39 lines 21-48). Higashi teaches that the presence of halogen impurities in organic materials used in the organic compound layers of an

organic EL device will attenuate emission luminance and short emission layer in organic EL devices (column 29 lines 41-67 and column 30 lines 1-18).

25. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify production of the aluminum chelate complex taught by Kita to include an exercise of quality control during the production of the aluminum chelate complex to insure the lack of impurities especially halogen containing impurities. The motivation would have been to produce pure aluminum chelate compounds that are suitable fore EL devices and make the halogen containing impurities are not present since they are known to attenuate emission luminance and short emission layer in organic EL devices. Also, since the method of Bryan does not include the use of materials that contain a halogen group the amount of the impurity would be 0 ppm

26. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bryan et al. (US 5141671) (hereafter “Bryan”) in view of Kita et al. (EP 1013740) (hereafter “Kita”) and Higashi et al. (WO 2000/41443) where Higashi et al. (US 6617051) (hereafter “Higashi”) is used as the English equivalent or Kita et al. (EP 1013740) (hereafter “Kita”) in view of Bryan et al. (US 5141671) (hereafter “Bryan”) and Higashi et al. (WO 2000/41443) where Higashi et al. (US 6617051) (hereafter “Higashi”) is used as the English equivalent as applied to claims 1, 2, and 9 above, and further in view of Tsuji et al. (US 2003/0129452) (hereafter “Tsuji”).

27. Regarding claim 8, Bryan in view of Kita and Higashi and Kita in view of Bryan and Higashi teaches the use of the aluminum chelate complexes as a light emitting material (see above).

28. Bryan in view of Kita and Higashi and Kita in view of Bryan and Higashi does not teach the aluminum chelate complex host material for a phosphorescent dopant in an electroluminescent device.

29. Tsuji teaches an organic electroluminescent element (abstract) that contains an aluminum chelate complex as a host material (formula (A), paragraphs [0039]-[0046]). These aluminum chelate complexes overlap with the aluminum chelate complexes taught by Bryan. Tsuji further teaches that the aluminum chelate complexes are host materials for phosphorescent materials and the phosphorescent materials are organic complexes containing platinum or iridium (paragraph [0048]). Tsuji teaches that phosphorescent materials are more efficient than fluorescent materials and produce EL elements that have higher light efficiency than those that contain fluorescence compounds (paragraph [0007]).

30. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify to the EL device of Bryan in view of Kita and Higashi and Kita in view of Bryan and Higashi, to use the aluminum chelate complex as a host material for a phosphorescent organic complex containing a noble metal as the dopant. The motivation would have been to produce an EL element having a higher light efficiency that those that only contain the aluminum chelate complex as the fluorescent material.

Conclusion

31. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew K. Bohaty whose telephone number is (571)270-1148. The examiner can normally be reached on Monday through Thursday 7:30 am to 5:00 pm EST and every other Friday from 7:30 am to 4 pm EST.

32. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, D. Lawrence Tarazano can be reached on (571)272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

33. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/A. K. B./
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